



Yorkshire Philosophical Society.

A N N U A L R E P O R T

FOR

MDCCCLXIV.



ANNUAL REPORT
OF THE COUNCIL
OF THE
YORKSHIRE
PHILOSOPHICAL SOCIETY
FOR
MDCCCLXIV.

PRESENTED TO THE ANNUAL MEETING,

FEBRUARY, 1865.



YORK:
J. SOTHERAN, BOOKSELLER, CONEYSTREET.

1865.

TRUSTEES
OF
THE YORKSHIRE MUSEUM,

APPOINTED BY ROYAL GRANT.

HON. AND VERY REV. HENRY HOWARD, D. D.

SIR WILLIAM LAWSON, BART., F. S. A.

ROBERT DENISON, ESQ.

REV. WILLIAM VERNON HARCOURT, F. R. S.

PATRONESS

OF THE

Dorsetshire Philosophical Society.

HER MAJESTY THE QUEEN.

PATRONS.

THE ARCHBISHOP OF CANTERBURY.

THE ARCHBISHOP OF YORK.

THE LORD FEVERSHAM.

OFFICERS OF THE SOCIETY, 1865.

PRESIDENT:

THE ARCHBISHOP OF YORK.

VICE-PRESIDENTS.

THE EARL OF ZETLAND, K. T.

THE LORD LONDESBOROUGH.

THE HON. & VERY REV. THE DEAN OF YORK.

WILLIAM RUDSTON READ, F. L. S.

JOHN PHILLIPS, F. R. S.

THE REV. W. V. HARCOURT, F. R. S.

ROBERT DENISON.

THE REV. CANON HEY.

THOMAS ALLIS, F. L. S.

THE REV. JOHN KENRICK, M. A., F. S. A.

TREASURER:

WILLIAM GRAY, F. R. A. S., F. G. S.

COUNCIL:

Elected 1863 . . . REV. G. H. PHILIPS.

EDWARD SMALLWOOD.

WILLIAM MATTERSON, M. D.

S. W. NORTH.

Elected 1864 . . WILLIAM PROCTER, M. D., F. C. S.

JOSEPH WILKINSON.

REV. THOMAS MYERS.

W. C. ANDERSON.

Elected 1865 . . J. H. GIBSON, M. D.

REV. GEORGE ROWE.

JOHN FORD.

WILLIAM W. HARGROVE.

HON. SECRETARY:

T. S. NOBLE, F. R. A. S.

CURATORS :

GEOLOGY AND MINERALOGY .	WM. PROCTER, M. D., F. C. S.
COMPARATIVE ANATOMY . .	THOMAS ALLIS, F. L. S.
BRITISH ORNITHOLOGY . .	W. RUDSTON READ, F. L. S.
INSECTS AND CRUSTACEA . .	REV. CANON HEY.
ANTIQUARIAN DEPARTMENT .	REV. JOHN KENRICK, F. S. A.
LIBRARY	REV. JOHN LEES.
BOTANY	WILLIAM MATTERSON, M. D.
	REV. W. V. HARCOURT, F. R. S.
	W. GRAY, F. R. A. S., F. G. S.
OBSERVATORY & METEOROLOGY,	JOHN FORD.
<i>under the Care of a Committee</i>	REV. CANON HEY.
<i>consisting of</i>	T. S. NOBLE, F. R. A. S.
	REV. JOHN LEES.

KEEPER OF THE MUSEUM :

WILLIAM S. DALLAS, F. L. S.

SUBCURATOR OF THE MUSEUM & GARDENS :

HENRY BAINES.

REPORT OF THE COUNCIL

OF THE

YORKSHIRE PHILOSOPHICAL SOCIETY.

FEB. 7, 1865.

ALTHOUGH with one exception the year 1864 has not been remarkable for the additions which it has brought to our Museum, it is, nevertheless, not without interest in the history of the Yorkshire Philosophical Society. It has witnessed the acquisition by the Society of the remainder of the site of the Church of St. Mary's Abbey, the visit of the Association for the Promotion of Social Science to York, and the publication for the benefit of the Society of Mr. Kenrick's valuable volume of Historical and Archæological Papers.

Acting under the authority of a Resolution passed at the last Annual Meeting of the Society, the Secretary succeeded early in the year in entering into an arrangement with the Committee of the School for the Blind, for obtaining that part of the site of the Abbey Church not already in the Society's Grounds, in exchange for a corresponding portion of land in the orchard recently leased by the Society of the Crown. The necessary alterations in the boundaries were then made, and the result has been a great and interesting addition to the Gardens of the Society, accompanied by an equal improvement in the appearance of the north-western front of the Blind School.

On learning that it was the intention of the Association for the Promotion of Social Science to hold its Meeting for 1864 in York, the Council readily placed at the disposal of the Local Committee such of the rooms in the Museum as were adapted to the purposes of the Meeting; and the importance and interest of the subjects discussed in the Sections, and the advantage derived by the citizens of York from the visit of the Association, have fully justified the Council in affording such assistance as lay in its power towards rendering the Meeting a successful one. That the Meeting was highly successful is admitted on all hands, and the Committee of the Association have forwarded to the Council a most cordial expression of thanks for the co-operation of this Society.

In the last Report the Council announced that the Rev. John Kenrick had kindly consented to allow various Papers on Historical and Archæological Subjects, which he had at different times read before the Society, to be published for its benefit, the proceeds to be devoted to the increase of the Library. These memoirs, eight in number, forming an octavo volume of nearly 240 pages, were printed in the course of the summer, and the thanks of the Society are due to Mr. Kenrick, not only for the liberality with which he has presented to it the copyright of such valuable Papers, but also for the care and trouble which he took in correcting the proof-sheets and arranging all matters connected with the publication of the volume. Nearly 250 copies of the volume were subscribed for by Members of the Society and others to whom circulars announcing the intended publication were sent. The proceeds of these subscription copies more than pay the cost of the whole impression (of 500 copies), and the Society has now 250 copies on hand, the entire proceeds of the sale of which will be available for the purpose to which Mr. Kenrick intended the profits of the work to be applied. The Journal of the British Archæological Association from its commencement, purchased for £8 at the sale of the late Dr. Jessop's books, has already been added to the Library by means of the surplus from the subscription copies.

It has long been manifest to the Council, as also to many

Members of the Society, that it would be desirable to thin the trees and shrubs in most parts of the Garden, as they were not only encroaching considerably upon the space intended for the accommodation of visitors, and preventing the free circulation of air in the Grounds, but actually causing injury to each other by interference during growth. Nevertheless, the Gardens were still so beautiful during the summer, and the effects of the skill and taste with which they were originally laid out were so obvious, that the Council naturally hesitated before giving orders for the extensive thinning out and pruning that had become requisite, fearful lest some error in the performance of a necessary operation might injure the general appearance of the Gardens.

On the acquisition of the new ground the necessity of improving the approaches to it brought the general question of the condition of the trees in the Gardens more prominently before the Council, and a Committee, consisting of the Rev. Canon Hey, W. H. Rudston Read, Esq., R. Denison, Esq., and the Secretary, was appointed to determine what was required to be done for the improvement of the Grounds in this particular, and to superintend the operation. The Society is much indebted to these gentlemen, and especially to Mr. Read, for the attention which has been paid to this important matter; and the Council is convinced that as the summer advances it will prove that their labours have effected a great improvement in the appearance of the Grounds.

The Donations to the Collections in the Museum have neither been numerous nor generally of great importance.

The chief additions to the GEOLOGICAL and MINERALOGICAL Collections have consisted of a selection of Minerals and Fossils, the latter chiefly from the Crag, presented by the Rev. James Raine; and of a further series of Fossils from the Upper Greensand of Cambridge, with a few from other formations in the same district, presented by Mr. J. F. Walker.

In the year 1854 considerable portions of a Roman Tessellated Pavement were brought from Dalton Parlours, near Collingham, where a Roman Villa stood.* They have since remained in detached fragments in the possession of the Society, but have

* See Proceedings of the Yorkshire Philosophical Society, p. 270.

now been united and placed in the upper room of the Hospitium. Although necessarily imperfect, they seem to give an idea of the bold and rich style which characterized this specimen of Roman art.

The Map recently published by our Associate, Mr. R. H. Skaife, exhibits in a striking manner the growth of our City from the simple rectangle of Eburacum, through the mediæval City, with its Walls and Bars, to the wide extent of modern York. The scale on which it is laid down and the distinctness of the engraving allow every object of importance to be clearly represented. By his accurate antiquarian researches the Author has been enabled to assign the sites of ancient buildings long swept away, and to restore local names connected with the history of the City which have disappeared from modern use.

The only additions to the Collection of BRITISH ORNITHOLOGY have consisted in a pair of British-killed specimens of Pallas' Sand Grouse (*Syrrhaptes paradoxus*), which were purchased for the Society at a moderate cost through the kindness of Mr. T. H. Allis. This curious bird, an inhabitant of the Steppes of Tartary, found its way in considerable numbers to this country in 1863, and although it can only be regarded as an accidental visitor, the possession of authentic specimens is of great importance for the completeness of the Rudston Collection. Mr. Read, the Curator of this department, has presented to the Society a beautiful Male specimen of the Goosander (*Mergus Merganser*), which has been substituted for that formerly in the Collection.

The Collection of BRITISH MAMMALIA, the formation of which was recorded in the Report for 1863, has been enriched by the addition of a fine female specimen of the Wild Cat, presented by Mr. E. W. Dallas, of Edinburgh. Several of the smaller Mammalia, chiefly Bats and Field Mice, have also been added to this Collection by Mr. Rudston Read.

Very few additions have been made to the general ZOOLOGICAL Collection, or to the ENTOMOLOGICAL and BOTANICAL Collections.

The Collection of COMPARATIVE ANATOMY has received one of the most magnificent additions ever made to the Museum. This is the fine Skeleton of the Moa (*Dinornis robustus*), *

* See end of this Report.

presented to the Society by Dr. Gibson, having been procured for him in New Zealand by his brother, Mr. Edward Gibson, of Oamaru. This fine specimen has been the subject of a Paper read by Dr. Gibson to the Society, of which an Abstract will appear in a subsequent page. It is stated by Professor Owen to be perfectly unique, and will probably for many years constitute one of the most interesting objects in our Museum. Several of the bones, including the skull, which is in a beautiful state of preservation, and the coracoideo-scapular bone, which was previously unknown, and is apparently the sole representative of the anterior limb, were lent to Professor Owen, and will be described and figured in his next Memoir on the Gigantic Wingless Birds of New Zealand. The Skeleton has been mounted by Mr. Allis, and is now exhibited in a separate case in the Osteological Room.

The LIBRARY has received a considerable number of books during the past year, but none of them require to be particularly mentioned except the work of Dr. Birch, "On the Papyrus of Nas Khem," printed for private circulation by H. R. H. the Prince of Wales, and presented to the Society by His Royal Highness through the kind intervention of the Dean of Westminster. The purchase of the "Journal of the British Archæological Association," out of the profits of Mr. Kenrick's volumes, has already been mentioned, and the Council hope in future years to announce other additions to the Library from the same source.

The Curator of METEOROLOGICAL INSTRUMENTS reports that the temperature at York for the year 1864 was slightly above a mean. The height of the column of mercury was a little below the usual mean. The rain-fall for the year is 1·96 inches below the mean of the ten years ending December 31st, 1864. The rain-fall for July was only 0·47 inches, the least amount on record for that month in the last thirty-three years. The next lowest for that month was 0·77 in the year 1847.

METEOROLOGICAL REGISTER, YORK, 1864.

BAROMETER.				RAIN.		THERMOMETER.					Prevailing Wind.
	Highest.	Lowest.	Mean.	Inches.	Days.	Average Max.	Average Min.	Mean.	Highest.	Lowest.	
Jan.	30.62	29.53	30.08	0.82	13	40.2	30.7	35.5	52.5	14	S. E.
Feb.	30.46	29.18	29.81	1.15	12	40.5	30.5	35.5	53.0	16	E.
Mar.	30.15	28.81	29.56	1.78	12	45.1	32.4	38.8	53.5	23	E.
April	30.31	29.45	29.88	1.76	10	56.2	39.9	53.0	71.5	33	S. E.
May	30.30	29.71	29.92	2.78	11	62.6	45.2	53.9	81.5	36	E.
June	30.21	29.47	29.80	1.36	13	65.3	50.1	57.7	72.0	35	W.
July	30.26	29.50	29.89	0.47	6	67.5	52.1	59.8	80.0	49	W.
Aug.	30.58	29.60	29.96	1.16	13	65.7	49.2	57.5	79.0	35	W.
Sept.	30.46	29.25	29.75	2.31	16	62.8	48.8	55.8	72.0	41	S. W.
Oct.	30.45	28.97	29.81	2.57	15	53.6	45.1	49.4	62.0	35	E.
Nov.	30.69	28.61	29.66	2.45	17	46.7	36.3	41.5	53.0	32	S. E.
Dec.	30.62	29.50	29.91	2.52	14	42.8	34.2	38.5	52.0	22	E.
			29.83	21.13	152			48.07	81.5		

RAIN-FALL, 1864.

	Malton.	Wheldrake.	York.	Ackworth.	Settle.
Jan.	1.07	0.76	0.82	0.53	3.17
Feb.	1.74	1.25	1.15	1.47	3.12
Mar.	1.88	1.63	1.78	1.86	2.98
April	1.31	1.42	1.76	1.38	1.54
May	2.62	2.80	2.78	2.16	1.57
June	2.37	1.90	1.36	1.04	2.84
July	0.93	0.75	0.47	0.69	1.30
Aug.	0.79	1.36	1.14	0.92	2.16
Sept.	2.13	1.63	2.31	1.94	3.99
Oct.	3.16	2.00	2.57	2.86	2.86
Nov.	2.44	2.27	2.45	2.87	4.38
Dec.	2.41	2.15	2.52	2.03	2.69
Totals	22.85	19.92	21.11	19.75	32.60
Totals } 1863 }	27.84	21.99	22.23	21.09	44.28

With regard to the Accounts for the past year, the Council regret that they have not to announce any reduction of the Debt standing against the Society ; but at the same time they think they may congratulate the Members on the fact that the resources of the Society are in so flourishing a state that, notwithstanding a greatly increased expenditure during the year 1864, the income has been nearly sufficient to meet all demands upon it. The amount received for the Subscriptions of Members is somewhat less than in 1863.

In relation to the amount received at the Gates for admission, the Council are able to congratulate the Society on the steadily increasing popularity of the Institution as evinced by this test. The amount received at the Gates in 1864 was higher than in any previous year, namely £239 1s. 9d. The receipts of the Swimming Bath have also produced to the Society the sum of £104 4s. 9d. ; and the Society's Tent has been in such demand that an amount of £46 10s. has been realized by it. The only other item requiring notice on the credit side of the account is the sum of £81, received from the subscribers to Mr. Kenrick's volume. The total Income of the Society from all sources in 1864 was £1464 2s. 1d.

In the account of the year's Expenditure the item which chiefly requires explanation is that of General Expenses and Repairs, amounting to £322 3s. 11d. Of this expenditure £60 is for painting and whitewashing the Hall, Council Room, and Library, and painting the whole of the outside wood-work of the Museum and the Greenhouses.

The rest of the extra expense was incurred in fitting up the glass case for the reception of the *Dinornis* ; in making necessary alterations in the grounds of the Blind School and at Lendal Hill ; in making a new drain from the Society's premises occupied by Miss Briskham ; and in laying down the tessellated pavement in the upper room of the Hospitium. Considerable repairs were found to be necessary at the Swimming Bath during the past year, and the expenses of that establishment are consequently rather higher than usual, namely £73 11s. 3d. The total Expenditure of the year amounted to £1497 18s. 6d., showing an excess over the Income of £33 16s. 5d., by which the balance against the Society is increased to £259 19s. 10d.

Thirteen LECTURES were delivered in the Theatre of the Museum during the past year, viz. :—

JAN. 27.—On Balloons and Balloon Ascents, with their Scientific Results ; by WM. PROCTER, Esq., M. D., F. C. S.

FEB. 17.—On the Organs of Hearing in the Animal Series ; by W. S. DALLAS, Esq., F. L. S.

MARCH 9.—On Chambered Tumuli ; by the REV. W. LUKIS, M. A., F. S. A.

MARCH 16.—On the Foundation and Early History of St. Mary's Abbey, York ; by the REV. JAMES RAINE, M. A.

MARCH 23.—On the Life of Lord Bacon ; by J. G. FITCH, Esq., one of Her Majesty's Inspectors of Schools.

APRIL 7.—On some Humble Creatures ; by S. W. NORTH, Esq.

OCT. 19.—On the Nature and Properties of Gun Cotton ; by WM. PROCTER, Esq., M. D., F. C. S.

OCT. 28.—Recollections of East Central Africa ; by the REV. L. J. PROCTER, B. A., late of the Zambesi Mission.

NOV. 9.—On the present state of the question respecting the credibility of the Early History of Rome ; by the REV. JOHN KENRICK, M. A.

NOV. 25.—On the Early History of St. Mary's Abbey, Part II. ; by the REV. JAMES RAINE, M. A.

DEC. 7.—On some Humble Creatures, Part II. ; by S. W. NORTH, Esq.

DEC. 14.—On St. Gregory the Great ; by the REV. JOHN LEES, M. A.

DEC. 20.—On the Origin of the Superposition of Stratified Rocks and the Cause of the Sequence of their Fossils ; by HARRY SEELEY, Esq., F. G. S., &c., of Cambridge.

Abstracts of the Papers read at the Monthly Meetings of the Society will be appended to this Report.

Twenty new Members, two Associates, and five Lady Subscribers, have been admitted since the last Annual Meeting ; but, on the other hand, the Society has lost, by death or resignation during the same period, ten Members, three Associates, and four Lady Subscribers ; the Society has, therefore gained ten Members and one Lady Subscriber, and lost one Associate during the past year.

In 1864 the Society has again lost one of those Honorary Members whose connection with it dates back almost to the

period of its foundation, in the person of Dr. Peter Murray, of Scarborough. Dr. Murray was well known as a collector of fossils, and was a liberal donor to the Geological Collection of the Museum during the earlier years of its existence.

In common with the public at large the Society has to deplore the loss of the Right Honorable the Earl of Carlisle. On the death of the Earl Fitzwilliam, in the year 1857, he was elected as his successor, and on taking the chair at our Monthly Meeting of the 1st of March, 1859, he delivered an address to the Members. It has been a subject of deep regret, that owing to engagements arising from the high political office which he held, we have not more frequently enjoyed the benefit of his presence among us. The Council unanimously recommend as his successor to this important office His Grace the Archbishop of York, who has been pleased to allow himself to be proposed as President of the Society.

The Council propose the re-election of J. H. Gibson, Esq., M.D., as a Member of Council, in accordance with a Resolution passed at the Annual Meeting in 1863, and as New Members of Council, the Rev. George Rowe, John Ford, Esq., and William Wallace Hargrove, Esq., in the room of the Right Honorable the Lord Mayor, the Rev. Robert Daniel, and W. E. Swaine, Esq., M.D., who retire by rotation.

W. GRAY, TREASURER.

MEMBERS ELECTED SINCE FEB. 1864.

1864.

Rev. D. Akenhead, *Sand Hutton*.
 William Barnby, *Minster Yard*.
 George Brown, *High Ousegate*.
 G. L. Cooper, *Clifton*.
 John Crossley, *Halifax*.
 Mrs. Darley, *St. Leonard's Place*.
 J. L. Foster, *Ogleforth*.
 Alfred Ely Hargrove, *St. Mary's*.
 T. Gibson Hartley, *Davygate*.
 W. H. Howlden, *Coney Street*.
 Right Rev. Bishop Nixon, *Bolton Percy*.
 F. O'Reilly, *Scarborough*.
 John Penrose, *Coney Street*.
 A. H. Spence, *Lendal*.
 Edward Taylor, *Stonegate*.
 John Ure, *Minster Yard*.
 W. H. White, *Foss Bridge*.

1865.

Rev. Joseph Salvin, *Castlegate*.
 Rev. G. Vance Smith, *Lord Mayor's Walk*.
 William Pumphrey, *Lawrence Street*.

ASSOCIATES.

E. C. Hammond, *York County Hospital*.
 William Rhodes, *Holgate Road*.

LADY SUBSCRIBERS, ADMITTED 1864.

Miss Anderson, *Blake Street*.
 Mrs. Lawton, *Marygate*.
 Mrs. Henry Simpson, *The Mount*.
 Miss Simpson, *Gray's Court*.
 Mrs. Ullathorne, *Marygate*.

RESOLUTIONS

PASSED AT THE ANNUAL MEETING, FEB. 7TH, 1865.

1. That the Report of the Council now read be adopted and printed for circulation amongst the Members, Lady Subscribers, and Associates of the Society.
2. That the thanks of the Society be given to the Members of the Council retiring from office, also to the Treasurer, Secretary, and Curators, for their valuable services, and that authority be given to the Council to hold Horticultural Meetings in the Museum Grounds, and to give admission to the Public to the Museum and Hospitium, on Whit-Monday and Tuesday, under the same regulations as last year.
3. That the thanks of the Meeting be given to the Chairman.

COMMUNICATIONS
TO THE
MONTHLY MEETINGS,
1864.

JAN. 5.—The REV. JOHN KENRICK read a paper “On New Year’s Day in Ancient Rome.” The author commenced by referring to the various periods at which different nations had placed the commencement of the year, and to the fact that the Romans are supposed to have originally begun their year at the vernal equinox, as indicated by the names of the last four months in the year. At a later period the Calends of January were fixed as the commencement of the year. The ordinary form of salutation on New Year’s Day was “*Annus Novus sit tibi faustus felix*,” or “May the New Year be auspicious and happy to thee.” Presents, called *strenæ*, were made by friends to each other, consisting of fruits, money, and small brass coin having the double head of Janus. Another peculiar custom which marked the Calends of January at Rome, was the obligation of every one to do some slight stroke of work by way of inaugurating the duties of the year. So careful were the Romans to guard against evil omens on this day, that no executions took place,—even Christians did not suffer martyrdom on the Calends of January. As described by Ovid, the festival of New Year’s Day had nothing in it of licence or indecorum; but it seems to have afterwards degenerated. The Christian fathers denounced the *strenæ* with great bitterness, and the feast of the Circumcision was instituted to change the character of the celebration. Mr. Kenrick also alluded to the various superstitions connected with New Year’s Day among the Romans. (This paper is printed in full in Mr. Kenrick’s volume of Historical and Archæological Essays.)

MARCH 1.—The REV. JOHN KENRICK read a notice of “The Papyrus of Nas-Khem,” a work by Dr. Birch, of the British Museum, presented to the Society’s Library by His Royal Highness the Prince of Wales. The Papyrus described by Dr. Birch was found upon a mummy in a tomb on the western side of the Nile at Thebes, which was opened in the presence of the Prince of Wales. It is one of those papyri, with a religious subject, which are generally met with rolled up and deposited either close to the skin or to the innermost wrapper of the mummy, or else externally on the breast or by the sides. They relate to the doctrine of the immortality of the soul and to its adventures after quitting the body, which are described in a work extending, when perfect, to 165 chapters; but the papyri of the class to which that described by Dr. Birch belonged, rarely contain more than a small portion of the whole work. The general idea conveyed by the emblems and by the hieroglyphic legends, is the assimilation of the deceased to Osiris—the established symbol of life after death. The epithets *Osirian* and *Justified* are applied on the monuments and in the papyri to the deceased person. Most of the papyri of this class exhibit the judgment scene before Osiris and his forty-two assessors, the declarations of the deceased in which he protests his innocence of crime, the weighing of the symbol of his heart, his purification by fire, his passage through the gates of the Elysian fields, his employments there, his embarkation in the boat of the Sun on the celestial river, &c. The Papyrus brought home by the Prince of Wales, which is much mutilated, and was written by an ignorant or dishonest scribe, cannot be completely explained, although there is no doubt as to its general purport. It belongs to a class of papyri in which the phenomena of life and death, and the belief in the immortality of the soul, were assimilated to the course of the sun. It was executed for a priest or prophet of Amen-Ra, the Theban Jupiter; his name was Nas-Khem, and he was the son of a female functionary named Tahesi, who appears to have been a singer. The papyrus is twelve feet in length. Dr. Birch considers its age to be probably as late as the fourth century B. C., near the close of the Persian dominion in Egypt.

APRIL 5.—The REV. JOHN KENRICK read a paper by the REV. J. C. ATKINSON, of Danby, giving an “Account of Excavations of Barrows in the Neighbourhood of Danby in Cleveland.” (This paper has been read before the Geological and Polytechnic

Society of the West Riding of Yorkshire, and published in their Proceedings.)

MAY 3.—MR. W. S. DALLAS, F.L.S., read a paper “On Traces of Primæval Man in the South of France.” After referring to the various recent discoveries which have led to a very general belief that man existed in Europe, and probably elsewhere, contemporaneously with many animals which have always been supposed to have been extinct long before the appearance of human inhabitants, Mr. Dallas proceeded to give an account of some of the more interesting results obtained by MM. Lartet and Christy by the exploration of certain caverns in the old Province of Périgord. In these caverns flint implements were found, intermixed with bones of extinct animals, under circumstances which indicate that they had been simultaneously deposited. The most interesting of the deposits was in the grotto of Les Eyzies, the floor of which was covered with a layer of osseous breccia, varying in thickness from four to ten inches. Many implements were found in this, and in some places the presence of ashes and fragments of charcoal indicated the spot where the primæval inhabitants were in the habit of making their fires. The long bones of the herbivorous animals were either broken or split for the extraction of their marrow. Amongst these bones those of the Reindeer greatly predominated, indicating that the cavern had been at one time inhabited by a people who supported themselves chiefly by the chase of that animal. Many weapons and implements formed of the horn of the Reindeer were also met with, including fine needles, and a peculiar kind of whistle made by perforating the first toe-bone of the Reindeer. In the same district deposits are found resting against the great escarpments of the Cretaceous rocks, and in these are numerous relics of the early inhabitants, such as worked flints, broken bones of various animals, and many objects fashioned out of bones and horns, especially those of the Reindeer. At a place called Laugerie-Haute there are traces of a manufactory of flint implements; and at Laugerie-Basse similar indications occur of an establishment for working in Reindeer horns. Many of the implements found at the latter place exhibit traces of great artistic taste and skill, and several of the carvings are very spirited representations of animals. These facts, with others recorded by MM. Lartet and Christy, seem to indicate the former existence in the South of France of a tribe of people largely dependent on the Reindeer for the means of living, and probably

in a condition very similar to that of the inhabitants of high northern latitudes at the present day,—and from a consideration of all the circumstances, we are led to the conclusion, that these Reindeer hunters of Périgord must have lived during at least a portion of the glacial period.

JUNE 7.—DR. GIBSON read a paper “On the Moas of New Zealand,” with especial reference to a specimen of one of the large species (*Dinornis robustus*), lately received by him and presented to the Museum. Dr. Gibson first described the general characters of the wingless or short-winged birds forming the Struthious order, which includes the living Ostriches, Emeus, and Cassowaries, and then referred to the occurrence of the remains of gigantic birds of the same conformation in the superficial deposits of many parts of the world. These remains are most abundant in New Zealand, where they began to attract the attention of scientific men in 1839, in which year the earliest bones brought to this country were described by Professor Owen as belonging to species of a peculiar genus of birds to which he gave the name of *Dinornis*. Great quantities of the bones have since been brought to this country, but nearly perfect skeletons are very rare. Dr. Gibson thought that the weight of evidence went to prove that these birds had been entirely extinct for many years, although the fresh condition of many parts of the skeleton presented by him would seem to be opposed to such a notion. The low flat skull and small spinal canal indicate that they were stupid, indolent birds, comparatively slow in action. They lived on vegetable food; and Dr. Gibson called attention to the peculiar form of the beak and the great strength of the neck, as admirably adapting them for digging up the fern-roots, which, in all probability, constituted their chief nourishment. The specimen presented by Dr. Gibson was found in the autumn of 1863 in a sand-drift, in the settlement of Otago, middle Island of New Zealand. It has been forwarded to England, along with fragments of egg-shell and some small bones, which indicate that it must have been sitting upon four or five young birds at the time of its death. The skeleton, which wants only a few bones to be quite perfect, presents many points of great interest;—those principally indicated by Dr. Gibson were the last joint in the tail, the remains of skin and feathers on the back, and the rough sole of one foot.

A paper was also read by MR. HENRY DENNY, of Leeds, entitled "Observations on the distribution of the Extinct Bears of Britain, with especial reference to a supposed new species of Fossil Bear from Ireland." (This paper was read before the Geological and Polytechnic Society of the West Riding of Yorkshire, and appears in full in its Proceedings.)

Nov. 1.—LEONARD THOMPSON, Esq. read a paper by Lady Mary Thompson, "On the new Chinese Silkworm lately introduced into Europe," giving an account of her experience in the cultivation of this species—the *Bombyx Cynthia*. This insect is a native of the colder parts of China, whence living cocoons were sent in 1856 to Turin by a Piedmontese missionary, accompanied by the statement that the larvæ fed on a tree resembling the Acacia. They were tried with leaves of the *Ailanthus glandulosa*, a common tree in ornamental plantations, and found to thrive upon them. From Piedmont the new silkworm was introduced into France, where its cultivation is now being carried on to a considerable extent, although the silk produced by it can only be used as *spun-silk*, that is to say carded like wool, instead of being wound off in a continuous thread, like that of the common silkworm. It is said, however, that a process has been discovered by which the silk may be wound off in the usual manner. The difficulty of so doing arises from the fact that the silk is laid more compactly than in the cocoon of the common silkworm, and cemented together by a gum which we do not yet know how to dissolve. The cocoon of *Bombyx Cynthia* is formed with an elastic opening for the egress of the mature insect.

The acclimatization of the insect in England was first attempted at Dangstein, in Hampshire, by Lady Dorothy Nevill, who has recorded her success in a pamphlet entitled "The Ailanthus Silkworm and the Ailanthus Tree." In June last, Lady Dorothy Nevill, hearing that Lady Mary Thompson wished to try how far the climate of this part of England would suit the new silkworm, sent her a present of two dozen newly-hatched larvæ. These arrived at Sheriff-Hutton Park on the 30th of June. They were first supplied with fresh gathered leaves, and in about two hours twenty-three of them were placed on a plant of Ailanthus in the greenhouse. The other specimen died. On the 15th of July the plant, with twenty silkworms upon it (three having made their escape), was placed in the garden, under an Ailanthus tree, which had been netted over to exclude birds. The change of tempera-

ture seemed to have rather a beneficial effect on the caterpillars, which grew rapidly. When full-grown the larvæ measure from eighty to ninety millimetres in length, or even more; they then select two or three leaflets which they fasten to the main stalk of the *Ailanthus*-leaf, and within the case thus formed spin their cocoons. The first of the specimens at Sheriff Hutton spun up on the 29th July; another began on the 31st, and by the afternoon of the 3rd August twelve had already spun their cocoons. Of the twenty specimens one died soon after they were put into the garden; three others died after the 14th August, apparently in consequence of a violent hailstorm; and another, after feeding voraciously until the 22nd August, was found next morning in a dying state at the foot of the tree, probably killed by the great cold of the night. The whole of the cocoons (fifteen) were gathered on the 24th August, divested of their leafy covering, and suspended in a temperature rarely under 60° F. On the 23rd September the first moth emerged; it was mistaken for a Bat, and was captured with the tongs. This specimen (a male) lived for ten or twelve days; it was tranquil during the day, but in a state of excitement at night. On the 19th October another (male) *Bombyx* escaped from its cocoon. It is remarkable that although the silkworms when received were apparently of the same age, there was an interval of more than three weeks between the spinning of the first on the 29th July and the death of the last, without spinning, on the 22nd August. In conclusion Lady Mary Thompson remarks:—"The *Ailanthus* has been long known in England as an ornamental tree, bearing all the changes of our variable climate; the silkworm, to judge by the limited experiment at Sheriff Hutton Park, can be raised in the open air, even in Yorkshire. It is scarcely, therefore, being too sanguine to hope, that at no distant time a new cultivation will be practised, which may contribute somewhat to the prosperity of the country."

DEC. 6.—In consequence of the death of the Earl of Carlisle, President of the Society, which occurred on the preceding day, the Monthly Meeting was adjourned to the 3rd of January.

DONATIONS TO THE MUSEUM.

GEOLOGY AND MINERALOGY.

- Brodie, Rev. P. B. (*Rossington*) } Slab of Limestone from the Middle Purbecks of the Vale of Wardour, Wilts., with impressions of the upper surface of *Archæoniscus Brodiei*.
- Dickinson, Rev. W. (*Wolferton*) } Some Hollow Ferruginous Nodules.
- Johnstone, Harry Bell, Esq. (*Auckland, N. Z.*) } Specimens of Minerals from New Zealand.
- Kershaw, J., Esq. (*Warwick*) } Corals from the Middle Lias of Cherrington, Warwickshire.
- Parkin, Mr. Wm. Fossils from Follifoot, near Harrogate.
- Raine, Rev. James Specimens of Minerals.
Numerous Fossils, chiefly from the Crag.
- Shortt, Mr. T. K. Fossil *Pecten* from Mount Egmont, New Zealand.
Asbestos from Tasmania.
- Slingsby, Sir C., Bart. .. Fossil Scapula and Tooth of the Mammoth and other Bones, found at Harswell, near Pocklington.
- Walker, J. F., Esq., (*Gillygate*) } Fossils from the Upper Greensand of Cambridge, the Kimmeridge Clay of Ely, and the Oxford Clay of St. Ives.
Specimen of *Ammonites Sussexiensis*, from the Lower Chalk of Burwell.
Humerus of a young Wild Boar, from the Cambridge Fens.
Fragment of Fossil Ivory, from Sinderham.
A Chalk Flint, from Woolwich, with Ferruginous Dendritic Markings.
Fragment of Schistose Rock, found in the Upper Greensand of Cambridge.

ZOOLOGY.

- Acroyd, Henry, Esq., (*Bad-* } A Male Wild Cat.
dinton Hall, Nantwich) .. }
- Baines, Mr. Henry A large Fish-Scale from Cuba.
- Clapham, A., Esq., (*Scarbro'*) A White-Tailed Eagle.
- Dallas, E. W., Esq., (*Edin-* } A Female Wild Cat, killed at Glenelg,
burgh) } Invernessshire.
- Gibson, J. H., Esq., M.D. A Skeleton of *Dinornis robustus* (Owen).
- Johnstone, Harry Bell, Esq. } Shells, Birds' Eggs, &c., from New
(Auckland, N. Z.) } Zealand.
- Read, W. H. Rudston, Esq. A Male Goosander.
 A Hedgehog.
 Three Bats.
 Two Long-Tailed Field-Mice.
 One Common Mouse.
- Thompson, The Lady Mary A specimen of the *Bombyx Cynthia*.
 Purchased A pair of Pallas' Sand Grouse (*Syr-
 rhaptus paradoxus*).
 Two Bank Voles (*Arvicola arvalis*).
 A Jay.
 A Stormy Petrel.
 A Little Auk.
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BOTANY.

- Higginson, A., Esq. (*Liver-* } Specimen of the Ordeal Bean of
pool) } Calabar.
- Swann, John, Esq. (*Lieut.* } Specimen of the Kauri Gum of New
H. M. S. Harrier) } Zealand, attached to the bark of the
 tree which produces it.
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ANTIQUITIES.

- Gott, T., Esq. (*Knaresborough*) Roman Bronze Basins, fragments of
 Colanders, and other articles, in
 Bronze and Iron, found near Knares-
 borough.

Hailstone, Edwd., Esq., (<i>Horton Hall, Bradford</i>)	} A Roman Stone Altar, found at Wyke, near Harewood.
Lloyd, Miss (<i>Peaseholme House</i>)	} Numerous Coins, Medals, Tokens, Plaster Medallions, and Impressions of Seals.
Riley, Mr. Edmond	The Upper Stone of a Quern, found near Dalton Holme Church.
Weatherley, Mr. R.	A Roman Vase, containing Calcined Bones.

MISCELLANEOUS.

Johnstone, Harry Bell, Esq. (<i>Auckland, N. Z.</i>)	} Dresses and other articles from New Zealand.
Procter, Wm., Esq., M.D.	A Caffre Dress.
Shortt, Mr. T. K.	Specimen of the Wood of Herne's Oak.

LIBRARY.

Admiralty, The Lords Com- missioners of the	} Greenwich Observations for 1862.
Association, British, for the Advancement of Science	} Report for 1863.
Association, Geologists' ..	Proceedings, vol. i., no. 10.
Astronomer Royal for Scot- land, The	} Edinburgh Astronomical Observations, vol. xii. (1855—59.)
The Author	Sur un Papyrus magique; par Samuel Birch, LL.D.
The Author	On the Sandstones and Shales of Scarbro'; by John Leckenby, F.G.S.
The Author	Danish Cromlechs and Burial Customs compared with those of Brittany, the Channel Islands, and Great Britain; by the Rev. W. C. Lukis, M.A.
The Author	On Inscribed Sling-Bullets and Tes- seræ Consulares; by the Rev. John Mc. Caul, of Toronto.

- The Author Supplements to the Monograph of the Fossil Reptilia of the Cretaceous Formations ; by Professor Owen, F.R.S., &c.
- The Author Descriptions of Three New Shells ; by G. B. Sowerby.
- The Author Ancient Egypt ; by the Rev. George Trevor, M.A.
- Berwickshire Naturalists' Club } Proceedings, vol. v., no. 1.
- Boucher de Perthes, M. (Abbeville) } Sur la mâchoire humaine découverte par M. Boucher de Perthes dans le diluvium d'Abbeville, par M. de Quatrefages.
- Note sur les résultats fournis par une enquête relative à l'authenticité de la découverte d'une mâchoire humaine dans le terrain diluvien de Moulin-Quignon, par M. Milue-Edwards.
- L'Abbevillois, 19th July, 1864.
- Churchill, Messrs., (*London*) } Quarterly Journal of Science, no. 1.
- Dallin, Mrs., Representatives of the late } Smeaton's Account of Eddystone Lighthouse.
- Dixon, Mrs., (*Minster Yd.*) } Fasti Eboracenses : Lives of the Archbishops of York ; by the Rev. W. H. Dixon ; edited and enlarged by the Rev. James Raine.
- Fisher, E. C., Esq. Reports of the Sanitary Commission of the United States Army.
- India, Geological Survey of } Annual Report, 1862—63.
- Palæontologia Indica, vol. ii., parts 3—6, and vol. iii., parts 1 and 3.
- Lloyd, Miss, (*Peasholme House*) } Birchall's Descriptive List of Provincial Copper Coins and Tokens, issued between the years 1786 and 1796.
- Prince of Wales, His Royal Highness the } The Papyrus of Nas-Khem ; by S. Birch, LL. D.
- Purchased (from Mr. Kenrick's volume.) } The Journal of the British Archæological Association, from its commencement to 1860.

- Read, W. H. Rudston, Esq. Journal of Proceedings of the Linnean Society, nos. 28—30.
- Society, Chemical. Journal for 1864.
- Society, Geological and Polytechnic, of the West Riding } Report of Proceedings for 1862.
- Society, Huddersfield Literary and Scientific. . . . } Seventh Annual Report.
- Society, Hull Literary and Philosophical } Report for 1864.
- Society, Leeds Philosophical and Literary } Annual Reports for 1862—63 and 1863—64.
- Essay on the Relation of Science to Modern Civilization; by Professor Henessey.
- Lecture on the Early History of Leeds; by Thomas Wright, M. A., F.S.A., &c.
- Society, Liverpool Literary and Philosophical } Proceedings, no. 17.
- Society, Royal, of Edinburgh Transactions, vol. xxiii., part 2. Proceedings, 1862—1863.
- Tyneside Naturalists' Field Club } Transactions, vol. vi., part 2.
- United States Patent Office Report of the United States Commissioner of Patents for the year 1861, 2 vols.
- Introductory Report of the Commissioner of Patents for the year 1863.
- Warwickshire Naturalists' Field Club. } Proceedings for 1863.
- Westhead, J. P. B., Esq., M. P. } Masterpieces of Industrial Art and Sculpture in the Exhibition of 1862; by J. B. Waring. The Text and 50 parts of Plates.

SERIAL WORKS SUBSCRIBED FOR.

- A Monograph of the Trochilidæ or Humming Birds, by John Gould, F. R. S. (completed).
- Birds of Australia, by the same, supplementary parts (3 published).

- Birds of Asia, by the same (16 parts published).
- Exotic Butterflies, being illustrations of New Species chiefly selected from the Collections of W. Wilson Saunders and W. C. Hewitson. By W. C. Hewitson. (23 nos.)
- Fauna Antiqua Sivalensis, or Geology of the Sewalik Hills, in the North of India, by Dr. Falconer and Major Cautley. (Parts 1 to 9 of Illustrations, and part 1 of Letterpress.)
- Proceedings of the Zoological Society, with Illustrations.
- Publications of the Palæontographical Society.
- Publications of the Ray Society.
- Sowerby's Thesaurus Conchyliorum, col. plates (22 parts published).
- Crania Britannica, or Delineations and Descriptions of the Skulls of the Aboriginal and early Inhabitants of the British Islands, by J. B. Davis, F.S.A., and J. Thurnam, M.D., F.S.A. (completed.)
- London, Edinburgh, and Dublin Philosophical Magazine.
- Annals and Magazine of Natural History.
- Archiv für Naturgeschichte.
- Geological Magazine.
- Gentleman's Magazine, from 1862.
- Journal of the British Archæological Association.
- Numismatic Chronicle.

Presented
13 MAR 1886

Skeleton of *Dinornis robustus*, (Owen).

ONE OF THE MOAS OF NEW ZEALAND.

IN THE

MUSEUM OF THE YORKSHIRE PHILOSOPHICAL SOCIETY. K

The Skeleton of the Moa, shown in the accompanying Photographs was presented to the Society by J. H. Gibson, Esq., M.D., and was obtained by his brother, Edmund Gibson, Esq., of Oawaru Dunedin, from the persons who discovered it.

It was found imbedded in a drift of almost impalpable sand. The greater portion of the bones are absolutely perfect, and as fresh as if the animal had only been killed a few months; on several of them cartilages and ligaments were remaining, while on the sacrum there was a large piece of skin set with feathers; but all of the cervical vertebræ have suffered more or less, the sand above them not being of sufficient depth to protect them from atmospheric injury. The Skeleton is nearly perfect; the parts wanting are a few of the upper cervical vertebræ, including the atlas; the first pair of dorsal ribs; the first pair of sternal ribs; the third left sternal rib, the right anterior limb, the left zygoma, and three out of the four bones of the left middle toe.

The Skeleton was accompanied by several bones of the young bird, and by fragments of the shell of the egg; thus indicating that the parent bird was brooding over its young when overwhelmed by the sand-drift. The bones of the young shew the presence of not less than four chicks.

The detached bones were exhibited and described by Thos. Allis, Esq., F.L.S., at a meeting of the Linnæan Society, held the 16th June, 1864, and the skeleton of the adult has since been articulated by him (assisted by Mr. Dallas), as shewn in Nos. 4 and 5.

No. 1. This Photograph shews the bones as they came into the possession of the Society.

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| 1. Sacrum, the skin and feathers adherent. | 3. Tarsus. | 5. Head (under side). |
| 2. Femur, (this bone is 12 in. long. | 4. Sternum (front view). | 6. Lower Mandible. |

No. 2 also shews the bones as received.

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|-------------------------|--|----------------------------|
| 1. Sacrum (under side). | 3. Fibula, with adherent cartilage and outer skin. | 6. Toe, with sole of Foot. |
| 2. Sternum. | 4. & 5. Ribs and Vertebræ. | 7. Head. |

No. 3. Bones of the Young Bird.

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|---------------|---------------------------|-----------------|
| 1. Ilium. | 3. Ischium and Os pubis. | 5, 6 & 7. Ribs. |
| 2. „ reverse. | 4. Sternum (one half of). | |

No. 4. Skeleton of Moa, as it stands in the Museum of the Yorkshire Philosophical Society, height 7 ft. 7 in.

No. 5. Skeleton of Moa (New Zealand) *Dinornis robustus*.

„ Ostrich (South Africa) *Struthio Camelus*, height 7 ft. 2 in.

The side shown of the Skeleton of the Ostrich has only four sternal ribs, instead of five, which is the normal number.

No. 6. Skeleton of Rhea (South America) *Rhea americana*, height 5 ft. 9 in.

„ Cassowary (Indian Archipelago) *Casuarus galeatus*, height 4 ft. 5 in.

„ Emu (New Holland) *Dromaius Novæ Hollandiæ*, height 6 ft. 3 in.

The skeletons of the four living generic types of Struthious Birds are given for the purpose of comparison with that of the extinct (?) Moa. Its nearest allies are the Emu and the Cassowary.



